BOGOLYUBOV, S. N.

Asia, Central - Floods

How eroding flash floods are formed and why they are harmful to the national economy. Geog. v shkole. No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

AID P - 3841

Subject : USSR/Meteorology

Card 1/1 Pub. 71-a - 4/35

Authors : Bogolyubov, S. N. and Z. P. Bogomazova

Title : Vertical direction of ground water is a basic factor in forming runoff

Periodical : Met. i. gidr., 6, 19-25, N/D 1955

Abstract : The authors discuss the possibility of correctly establishing by means of hydrographs the volume of underground water of any given area and its influence on surface runoff. Some data on catchment areas for central RSFSR and the Kiev basin for several years are presented in tables and curves. Five diagrams. Six Russian references, 1945-1950, 1 English, 1941.

Institution : None

Submitted : No date

Bogolyubov, S. N.

BOGOLYUBOV, S.N.

Subterranean water supply in the spring flow from rivers and temporary currents of the forest-steppe and forest areas. Trudy GGI no.61: 151-162 '57. (MIRA 10:12)

(Water, Underground) (Rivers)
(Stream measurements)

BOGOMAZOVA, Z.P.; BOGOLYUBOV, S.N.

Role of liquid precipitation in the formation of the catastrophic spring flood of 1908 in the Oka River. Sbor. rab. po gidrol no.1:56-61 '59. (MIRA 15:2)

1. Gosudarstvennyy gidrologicheskiy institut.
(Oka River—Floods)

BOGOLYUBOV, S.N.

Use of observational data obtained with precipitation gauges.
Sbor.rab.Kursk.gidromet.obser. no.1:60-65 '60. (MIRA 14:8)
(Precipitation (Meteorology)--Measurement)

BOGOLYUBOV, S.N.

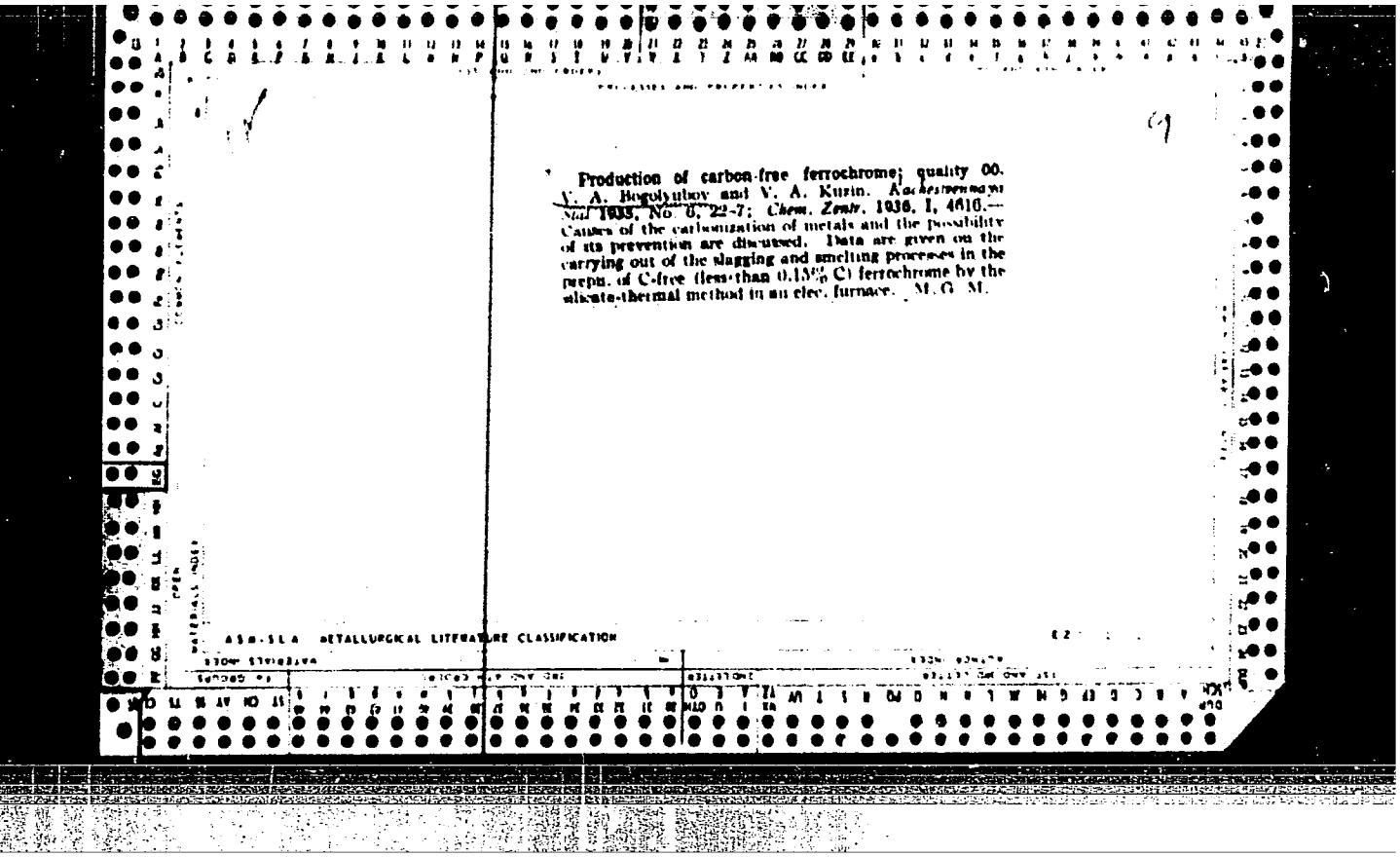
Formation of the storm runoff of small watercourses of the forest-steppe zone of the European part of the Soviet Union; according to materials of observations at the Nizhnedevitsk and Kamennaya Steppe experimental watersheds. Trudy GGI no.127:128-157 '65.
(MIRA 18:9)

BOGOLYUBOV, S.N.

Structure of base flow into rivers. Trudy GGI no.122, 209-216 '65. (MIRA 18:9)

BOGOLUBOV, V.

Bogolubov, V. CAUSTIC MAGNESIA LINING FOR ARC FURNACES. *Novosti Tekhniki*, No. 37, 1-2 (1934). — In contrast with sintered magnesite (firing temperature 1615 to 1750°), caustic magnesite (fired at 800 to 1000°) shows hydraulic properties. Chemically and physically both kinds of magnesite are similar except that caustic magnesia has a finer crystal lattice. Its advantage lies in the fact that it crystallizes more easily than sintered magnesite. The rammed linings used in electrometallurgy, containing tar, molasses, or water-glass, are unsatisfactory. The Moscow Steel Institute developed a rammed mix for arc furnaces, consisting of 80% sintered and 20% caustic magnesite, which recrystallizes with every melting and changes finally into a monolithic structure resisting highly oxidizing melts. Such linings were used successfully in Heroult arcs for melting steel and ferrochrome.



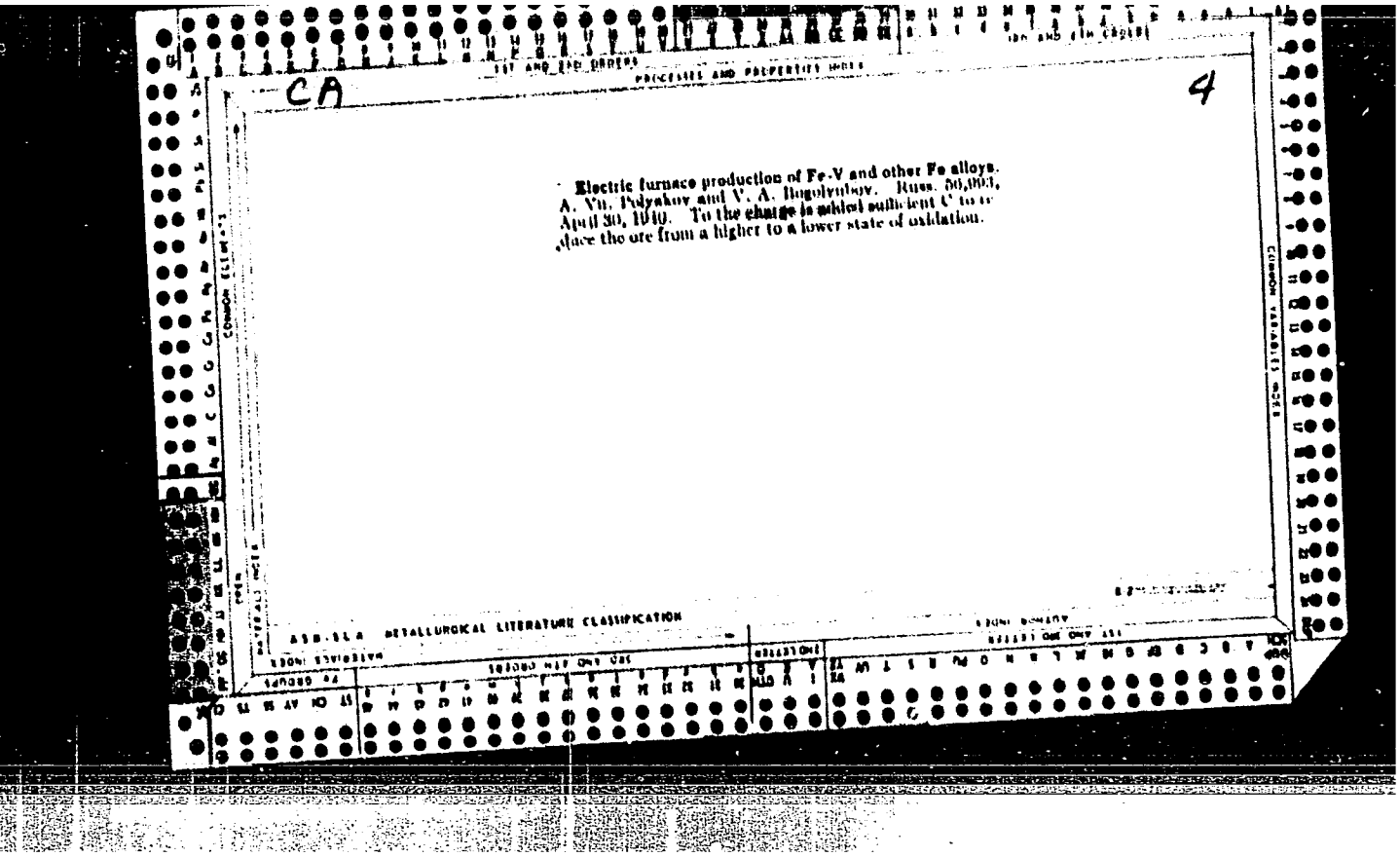
Production of carbon-free ferrochrome; quality 00. V. A. Bogolyubov and V. A. Kurin. *Kachestvennaya Stal'* 1935, No. 6, 22-7; *Chem. Zentr.* 1936, I, 4610.—Causes of the carburization of metals and the possibility of its prevention are discussed. Data are given on the carrying out of the slagging and smelting processes in the prepn. of C-free (less than 0.15% C) ferrochrome by the silicato-thermal method in an elec. furnace. M. G. M.

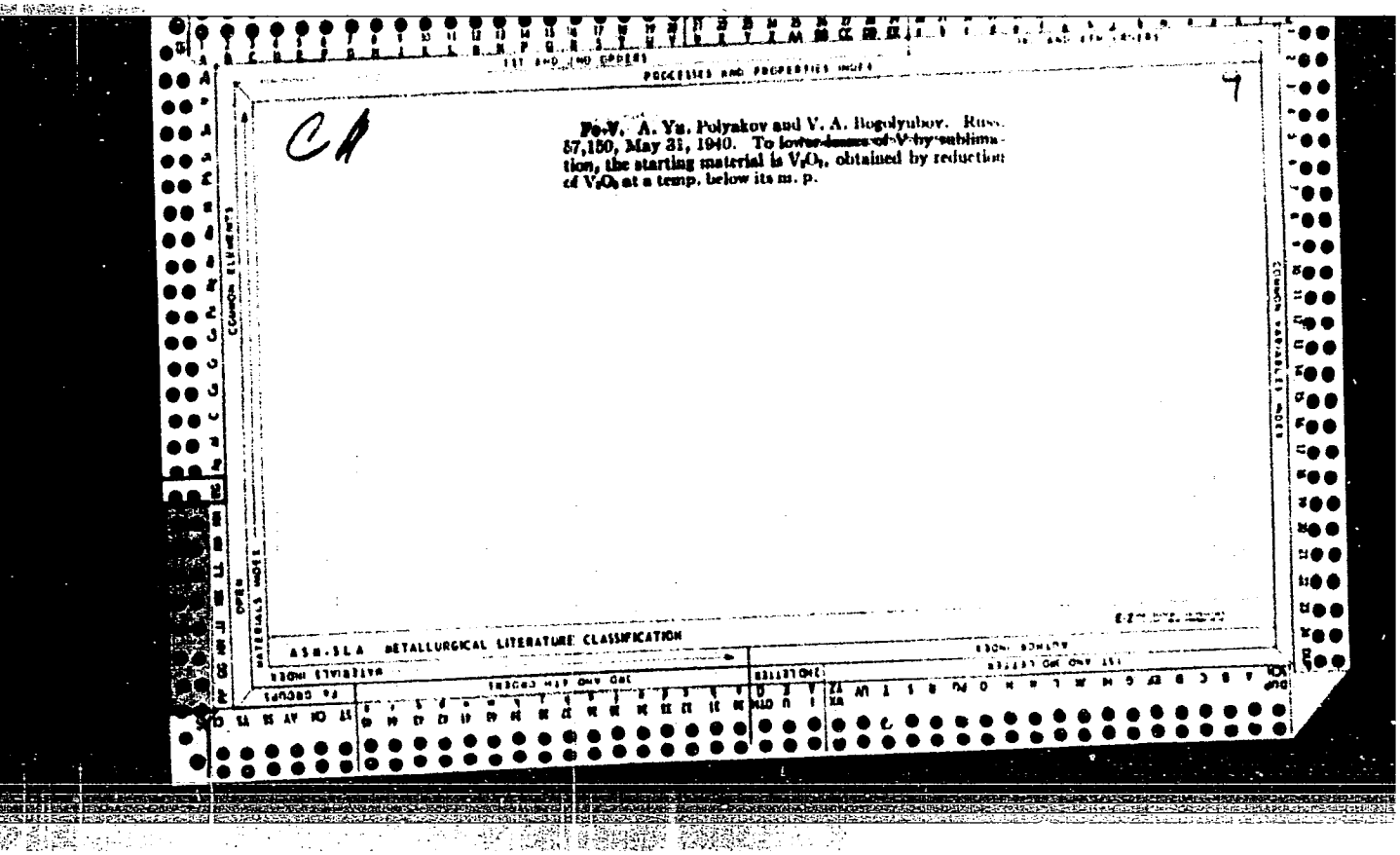
BOGOLYUBOV, V.

C. A. Vol. 34. June 20 - Nov. 10, 1940

"Production of Stainless Steel". V. Bogolyubov. Novosti Tekhniki 1939, No. 26-7, 29-31.

Stainless steel was prepd. by the direct method in a 100-kg. arc furnace in which a pulverized charge of chromite concentrate, saltpeter and Fe-Si was used. The Fe-Si was of 2 sizes: one larger than the concentrate and one slightly larger than dust. The large-sized Fe-Si served to redu[illegible] the chrome and Fe while the dust of Fe-Si was oxidized by the saltpeter. The dust amounted to 25% of the Fe-Si and the saltpeter was 10-15% of the concentrate. As soon as the C content reached 0.02-0.3% the oxidizing slag was taken off and the bath was deoxidized with the complex deoxidizer AMS with occasional addns. of Al and Fe-Ti. Then the new slag consisting of CaF_2, concentrate, lime and a small amt. of Fe-Si was added. After the slag was formed and the furnace was thoroughly heated the above charge was added in small amts. The melting was more rapid than with a flux and the reduction period was 1.5-2 times less than with a lime slag. The steel had 0.06-0.07% C.





CA

7

Fe-V. A. Ya. Polyakov and V. A. Bogolyubov. Russ. 57,180, May 31, 1940. To lower the cost of V by sublimation, the starting material is V_2O_3, obtained by reduction of V_2O_5 at a temp. below its m. p.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

alloys", by Frolov, A.A.
"Medium carbon ferro-chromium", by Sakharuk, P.A.
"An improvement in the smelting technology of ferro-chromium free from carbon", by Khitrik, S.I.
"Decarburisation of ferro-chromium in solid state in vacuo", by Kirichenko. I.D.
"Rational utilisation of chromium ores for smelting ferro-chromium" by Sakharuk, P.A. and Grishankova, E.A.
"Thermo-aluminium process", by Bogolyubov, V.A.
"An investigation of the technology of production of ferro-titanium on the Lipetsk Ferro-alloy Works", by Snezhko, P.F.
"The technology of production of ferro-tungsten" by Khazanova, T.P.
"The technology of production of ferro-molybdenum", by Agarkova, N.A.
"The production of ferro-vanadium", by Krasnykh, I.F.
"The development in the construction of electric furnaces in the ferro-alloy industry", by Baycher, M.Yu.
"A typical melting shop for the production of ferro-alloys", by Babenko, V.T.
"Methods and apparatus for the control of electrical parameters of ferro-alloy furnaces and ways for a complex automation",

All-Union Conference of the Workers of the Ferro-alloy Industry (January 29 - February 2, 1957). (Cont.) 133-5-11/27

by Morgulev, S.A.
"The production of metallic chromium by electrolysis", by Agladze, R.I.
"Steelmakers' requirements for ferro-alloys", by Nikolayev A.S.

The Conference considered that despite much development during the last 25 years (previous conference was held in 1932) there are some deficiencies which should be rapidly removed. The following are mentioned: scientific-research institutes and TsNIIChM in particular are slow in helping industry in the solution of most important problems; the co-ordination of joint investigations is insufficient; lack of trained personnel in metallurgical laboratories in many works. The basic deficiency of the industry is insufficient preparation of raw materials. The necessity of improvement in the preparation of materials for smelting was stressed by Gusarev, V.N., Volkov, V.F., Mikhaylov V.V., Makhabin, V.P., Runov, A.E., Khvichia, A.N. Kholopov, V.V. and others. Many proposed that crushing and screening should be carried out on ore fields. In view of rapid metallurgical development in Siberia, the necessity for accelerating the development of new manganese ore deposits in the East. Tests on an industrial scale of beneficiation and smelting of ores and

Card 3/8

All-Union Conference of the Workers of the Ferro-alloy industry (January 29 - February 2, 1957). (Cont.) 133-5-11/27

concentrates from the Usinsk, Zdhezdinsk and Atasuysk deposits should be carried out. The organisation of supply of lime (95% CaO) was criticised.. The conference recommended: 1) that in 1957 Glavspetsstal' should build new units for limestone calcination; 2) drying of coke-breeze on works, the installation to be designed by Giprostal' in 1957; 3) Giprokoks should investigate the possibility of producing special coke containing no more than 5-6% of ash, 0.05% of sulphur and 0.01% of phosphorous. The conference pointed out the differences in the production costs of the same products (calculated on the same basis) on different works; high earnings of auxiliary workshops (58% of total earnings); low state of mechanisation of work; slow progress in the design of single-phase transformers for large furnaces. After comments on the production of ferro-chromium, Bobkova, Kh.N., Bogolyubov, O.S., Topil'ski, V.A., Zhuralve, V.M. and others) the conference proposed: 1) to transfer all furnaces producing ferro-chromium free from carbon to operation with graphitised electrodes; 2) to speed up the start of the operation of tilting furnaces for the production of carbon-free ferro-chromium; 3) to put an end to lagging in the production of ferro-chromium containing less than 0.0% C, by

Card 4/8

All-Union Conference of the Workers of the Ferro-alloy industry (January 29 - February 2, 1957). (Cont.) 133-5-11/27

using the method of treatment of briquettes from ferro-chromium containing carbon with oxidants in vacuo; 4) to finish during 1957, experiments on an industrial scale the method of mixing in ladles of liquid melts (silicon-chromium and chromite - lime melt); 5) positive results of treatment of liquid ferro-chromium in a ladle under a high vacuo in order to decrease carbon content should be applied on all ferro-alloy works in 1957. 6) The operation of an experimental converter installation for the production of medium carbon ferro-chromium by blowing with oxygen followed by a treatment in vacuo should be speeded up; 7) to finish the experiments on an industrial scale on the production of silicon-chromium directly from the ore and quartz (which will permit the decrease of the carbon content); 8) put into operation a pilot plant for the production of electrolytic chromium (Agladze, R.E., Siorioze, G.Ya., Orlova, S.E. and others). The Mining and Metallurgical Institute of the Academy of Science of the Georgian S.S.R. (Institut Gornogo dela i metallurgii AN Gruzinskoy SSR), the Urals Institute of Chemical Industry (Uralskiy Institut Khimicheskoy Promyshlennosti) and TsNIIChM should speed up the conclusion of research work on the electrolysis of chromium and Giprostal' should

Card 5/8

All-Union Conference of the Workers of the Ferro-alloy Industry (January 29 - February 2, 1957). (Cont.) 133-5-11/27

design an industrial plant based on the results of the above research. Industrial investigations indicated the possibility of producing high quality silicon-manganese with low carbon content in one operation, instead of two used at present (Kharlamov, I.G., Khozanova, T.P., Pkhakadze, Sh.S.) During the present year the Institute of Ferro-alloys (Institut Ferrosplavov) and the Zaporozhsk Works should conclude the work on simplifying the technology of smelting metallic manganese. The conference paid attention to the mechanisation of casting ferro-alloys (Kozak, I.S., Koszkin, G.L. and others) and recommended the building on the Kuznetsk Works a casting machine for ferro-manganese and silicon-manganese of the Giprostal' design (as at present in operation at the Zaporozhsk Works). The conference pointed out the necessity for a wider application of pre-heating charges for the aluminium thermal processes (to economise aluminium) and to carry out smelting in arc furnaces (Epshteyn, N.I., Pliner, Yu.L. and others). The industrial production of smelting ferro-titanium containing more than 40% Ti, from the Perovskitov concentrate should be started in 1957 (Kumysh, I.S. and others). The construction of a plant for the production of alloys containing titanium, zirconium, niobium

Card 6/8

All-Union Conference of the Workers of the Ferro-alloy Industry (January 29 - February 2, 1957). (Cont.)133-5-11/27

etc., was recommended (Ignatenko, G.F., Karsanov, G.V. etc.) It was considered necessary to speed up pilot plant experiments on the production of silico-aluminium from wastes of beneficiation of Tribul'sk coals (Mikeladze) after which the Giprostal' would prepare proposals on the organisation of production. In view of a large consumption of vanadium some new deposits should be studied. The nearest task is the conclusion of building a new chemical plant on the Chusovsk Works, on which a continuous technolgical cycle and better equipment should be introduced. This will permit increasing the use of vanadium (Rispel ', K.N., Slotvinskiy and others). In 1957, all ferro-alloy works should be supplied with charging machines (for open furnaces) of the system Plyuyko and Kozak. It was considered necessary to design a closed rotary furnace of large capacity as well as to conclude in 1957 the work on partial recovery of waste gas from the ferro-silicon furnace on the Zaporozhstal' works. In view of the forthcoming construction of new ferro-alloy works the conference considered that Giprostal' together with OKB of the "Elektropech" trust and TsNIIChM should design during 1957-58 a rational ferro-alloy melting shop. The conference also considered that similar conferences discussing a

Card 7/8

All-Union Conference of the Workers of the Ferro-alloy Industry (January 29 - February 2, 1957). (Cont.) 133-5-11/27

narrow range of problems should take place once a year.

ASSOCIATION: TsNIIChM

AVAILABLE

Card 8/8

BOGOLYUBOV, V.A.

AUTHOR: Bogolyubov, V.A. (Cand.Tech.Sc.) 133-6-16/33

TITLE: The dependence of the temperature of an aluminothermic process on its specific heat. (Zavisimost' temperatury alyuminotermicheskogo protsessa ot udel'noy teploty).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp. 531-535 (USSR).

ABSTRACT: The thermal and temperature effects of the reduction of metallic oxides with aluminium is discussed in general terms and a short review of the literature dealing with the calculated and measured temperatures of the process is given. The temperature attained during reduction of iron oxide with aluminium in the presence of various proportions of magnesiac powder and the thermal effect of the process were experimentally determined. The temperature measurements were carried out using a tungsten-molybdenum thermocouple and charges of 3 kg of an iron ore (2.05% SiO_2), 1.1 kg of aluminium powder and various amounts of ground magnesite (0.6 to 2.1 kg) placed in magnesite crucibles. The experimental results are given in Table 1. Specific heat of the process was calculated on the basis of the heat of reduction of oxides without considering side reactions. The dependence between the temperatures measured and calculated specific heats was found to be

Card 1/3

The dependence of the temperature of an aluminothermic process on its specific heat. (Cont.) 133-6-16/33

linear (Fig.1, line a) as was expected from theoretical considerations. By extrapolating the above linear relationship the temperature which can be attained with a charge free from magnesite powder was obtained (2420 C). Taking into consideration that somewhat lower temperatures are obtained by measurements with thermocouples it is assumed that the actual temperature of the iron-thermite reaction somewhat exceeds 2450 C. By varying the preheating temperature of the charge by 100, 200 and 300 C it was found that the preheating of the charge by 100 C corresponds to an increase in the temperatures attained during the process by 56 C and an increase in the specific heat of the process by 32 kcal/kg. The measurements of the heat effect of the process were carried out in a special calorimeter (the description of which is given in Figs.2 and 3) using the same materials as for the determination of the temperatures attained. The results obtained (table and Fig.4) were used for the determination of the actual relationship between the temperature and specific heat of the process (Fig.1, line b).

Card 2/3

The dependence of the temperature of an aluminothermic process on its specific heat. (Cont.) 133-6-16/33

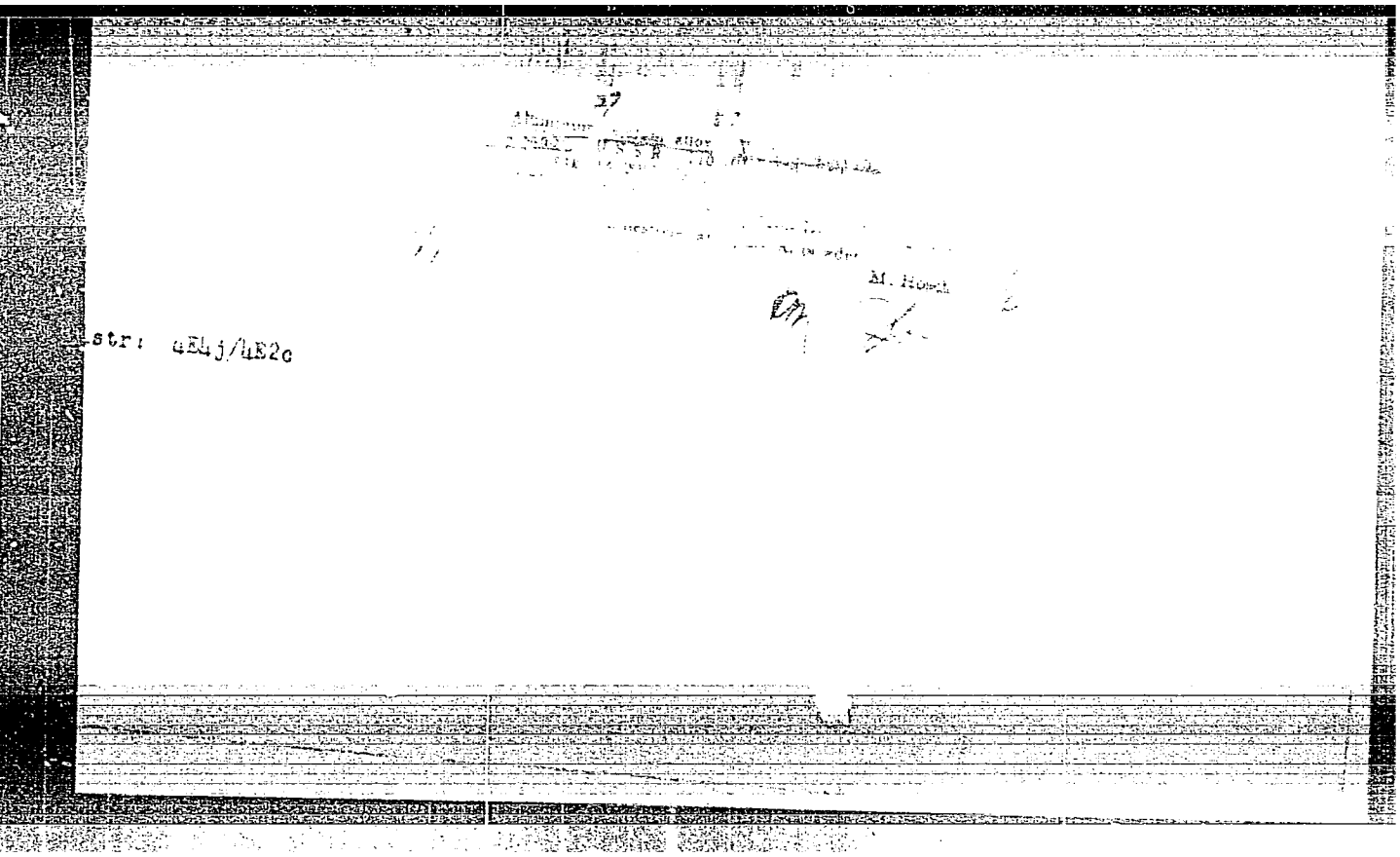
The following participated in the work under the direction of the author: G.V.Karsanov, I.S.Kumysh, N.I.Utkin, B.A.Shushlenin, A.S.Kornev, and L.L.Skvortsov.

There are 4 figures, 1 table and 6 references, including 3 Slavic.

ASSOCIATION: Institute of Ferroalloys of the TsNIIChM. (Institut Ferrosplavov TsNIIChM).

AVAILABLE: Library of Congress

Card 3/3



Distr: 4E4j/4E2c

BOGOLYUBOV, V.A.

Ispolyzovanie kalorimetra dlya issledovaniya metallotermicheskikh protsessov.

report submitted for the 5th Physical Chemical Conference on Steel Production.

Moscow 30 JUN 1959

85827

S/133/60/000/009/004/015
A054/A029

18.7530

AUTHORS: Perepelkin, V.P., Engineer and Bogolyubov, V.A., Candidate of Technical Sciences

TITLE: High Nitrogen Alloys

PERIODICAL: Stal', 1960, No. 9, pp. 813-816

TEXT: By applying nitrogen in chromium, chromium-manganese and chromium-nickel alloys, the structure and some mechanical properties of these alloys are improved. As chromium-manganese and its alloys are able to adsorb a considerable amount of nitrogen and form a stable bond with it, they are used to introduce nitrogen into steel by adding them to the steel bath. Several methods to obtain ferro-chromium and ferro-manganese with a high nitrogen content are described: by the alumino-thermic method a ferro-chrome with a nitrogen content of 0.9-1.3 %, by the silico-thermic process (outside the furnace) a nitrogen content of 2 % can be obtained. The introduction of nitrogen by the saturation of solid ferro-chrome shows good results. In this way ferro-chrome of a nitrogen content of 7 % is produced. The best results are obtained with briquets of decarbonized ferrochromium, obtained from the decarbonization of high-carbon ferrochromium by iron ores or other oxidizing agents nitrided in vacuum

Card 1/2

High Nitrogen Alloys

S/133/60/000/009/004/015
A054/A029

and yielding a nitrogen content even of 8 %. In order to introduce nitrogen into manganese, an apparatus was designed for tests on a semi-industrial scale, producing 70 kg nitrogen-containing manganese (with 4-5 % N) from manganese metal powder, under current and in an atmosphere of technical nitrogen, cleaned previously. The main part of the device is a hermetically sealed tube of stainless steel, with a diameter of 200 mm and 1,200 mm long, revolving at 30 rpm. Manganese powder is fed into the heated zone of the tube at 900°C for 30-60 minutes. The total process takes 2 hours. From all the tests it could be concluded in general, that the dry method for obtaining nitrogen-containing alloys by nitriding are more suitable: they yield alloys with 4-8 % N-content as compared with the 2.5-3 % N-content obtained by the liquid (aluthermic)processes. The solid state process is also more economical, the price of 1 kg N in nitrided decarbonized ferro-chrome (with a 6 % N-content) amounts to 10-15 rubles, in high-nitrogen manganese metal to 15-20 rubles, while in ferro-chrome nitrided by the aluthermic process to as much as 400-500 rubles. The methods of obtaining nitrogen-containing ferro-chrome, (solid and liquid processes), nitrided manganese and nitrogen-containing chromium-manganese alloys, the economic aspects of the processes are described in detail. There are 3 figures and 16 references: 11 Soviet, 3 English, 1 German and 1 Swedish (from the Soviet references three are translations of Japanese, Canadian and Western German patents).

Card 2/2

BO[illegible]YUBOV, V.A.; NAGOVITSYN, V.V.; TARATYNOV, V.P.; TEYMER, D.A.; FILYAND, M.A.

Stainless free-cutting steel. Metalloved. i term. obr. met. no.11:41-43 N '61. (MIRA 14:12)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Steel, Stainless)
(Tool steel)

18.1285

35220
S/148/62/000/001/004/015
E111/E435

AUTHORS: Lyakishev, N.P., Pogolyubov, V.A.

TITLE: Reduction of niobium concentrate with carbon

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.1, 1962, 70-77

TEXT: In the USSR, ferroniobium is produced by the "furnaceless" aluminothermic method, using the niobium concentrate from Vishnevogorsk ores. This ferroniobium is contaminated by aluminium, silicon and titanium. For pure ferroniobium expensive high-grade raw materials or alternative processes are needed. Reduction with carbon enables a high selectivity of reduction and a pure ferroniobium to be obtained from relatively lean concentrates (vanadium recovery, in concentration, is then 8 to 10% better). In the present article the authors consider some basic aspects of the carbon reduction process: reducibility of the concentrate (on which no work has been published), reaction of carbon with the metallic melt and the physical properties of the slag. The charge in a graphite crucible (150 mm tall, 20 mm bore, to give uniform temperature) was placed

Card 1/4

in a furnace with a carbon-resistance tubular heater element with facilities for continuous weighing of the charge to an accuracy of 0.5 g and for feeding-in a flow of nitrogen. The charge consisted of 2 to 3 mm pellets made from a mixture of niobium concentrate: 29.95% $(Nb + Ta)_2O_5$, 23.25% SiO_2, 8.35% TiO_2; 7.52% ZrO_2; 11.40% CaO; 0.84% MgO; 5.00% Al_2O_3; 6.78% FeC; 2.18% of rare earth metal oxides; 0.057% P; 0.72% S; 0.15% C; 4.50% Na; 0.12% K; minus 100-mesh graphite (99.86% C) and minus 60-mesh iron (98.0% Fe_{met}). The reacting surface of the graphite crucible was negligibly small compared with that of the pellets. Reduction was carried out in two stages: first at 1300 then at 1500 or 1700°C. Charge weights were 32 to 37 g approximately. The mixtures used were 100 parts by weight of concentrate with 10.59, 12.97 or 17.73 parts graphite and 15.9 or 29.0 iron powder. Within this range, the reducibility (as indicated by weight loss) rises with increasing contents of iron and of graphite and with rising temperature. The authors studied the solubility of carbon in Nb-Fe-Si alloy in relation to the silicon contents using a method in which fused alloys with various silicon contents were

saturated with carbon at the given temperature. The alloys were made from electrolytic iron, grade MLLM(MTsM) niobium and crystalline silicon, the compositions being as follows: iron: 99.0% Fe; niobium: 0.08% Fe, 98.8% Nb, 0.02% Si, 0.11% Ti, 0.10% Pb and 0.10% C; silicon: 0.95% Fe, 98.52% Si and 0.53% Al. To accelerate melting and reduce oxidation, the niobium was always placed in the alundum crucible first, then silicon, then iron. After heating to 1750°C and thorough stirring, the temperature was reduced to 1650°C and a graphite rod was inserted for 15 minutes. After holding for a further 10 minutes the charge was water quenched and analysed. The carbon is shown as a function of silicon content in Fig.5, curves 1 and 2 relating, respectively, to niobium:iron ratios of 0.6 and 1.0. The influence of the CaO/SiO_2 ratio on the viscosity of SiO_2, TiO_2, ZrO_2, CaO, Al_2O_3 slags, similar in composition to those obtained when ferroniobium is being produced from lean concentrates by the carbon reduction method, was studied. It was found that the viscosity falls with increasing silica content and is least at a basicity of 0.65. The authors recommend a basicity of 0.65 to 0.7 for ferroniobium production by the carbon

reduction method; they consider this method practicable.
There are 6 figures and 3 tables.

ASSOCIATION: TsNIIChERMET

SUBMITTED: October 16, 1961

Card 4/5

~~45238~~

18.1272

S/770/62/000/000/002/003

AUTHORS: Bogolyubov, V.A., Shushlebin, V.A.

TITLE: The making of alloying alloys containing zirconium for ferrous metallurgy.

SOURCE: Primeneniye tsirkoniya i yego soyedineniy v promyshlennosti; (materialy soveshchaniya pri Gosplane, GNTK i Akademii nauk USSR, Kiyev, 1960g.) Kiyev, Izdvo AN UkrSSR, 1962, 24-30.

TEXT: Zr-containing alloys used in steel smelting comprise Zr concentrates (CC), baddeleyite ZrO_2 CC, and technical ZrO_2 (compositions tabulated). Zr CC are used both in the USSR and abroad for high-Si alloys. In low-Si alloys, USSR practice employs ZrO_2 exclusively; elsewhere baddeleyite CC are also used. The USA is the prime producer of Zr alloying alloys, relying mainly on imported raw materials, even though large domestic Zr-ore deposits are available. USA use of Zr in steel smelting amounts to about 800 t/yr. In the absence of any foreign literature on the making of Zr alloying alloys, information must be obtained by analysis and by inference. A full-page table summarizes the composition of 8 Western alloys. The USA price of 1 kg of Zr (in Zr-Si) was one-half that of Ti in Fe-Ti obtained by the aluminothermic method. The comparably inexpensive method for the making of Zr-Si appears to be the carbothermic method. USSR activities in

Card 1/3

this field since 1941 have been primarily by Yu.Ye.Alekseyevskiy, P.P.Pytlyak, G.M.Vaynshteyn, V.P.Yelyutin, and R.N.Grigorash, who clarified the processes occurring during the smelting of alloys with Zr by various methods. The Yelyutin-Grigorash aluminothermic process for Zr-Si was tested on an industrial scale. Two methods for a more effective processing of Zr ligatures, the metallothermic and the carbothermic, have resulted from the many years of research at TsNIICher-Met (see "Association"), where they were developed by I.S.Kumysh, G.V.Karsanov, V.A.Shushlebin, and Yu.A.Matsepon under the direction of Candidate of Technical Sciences V.A.Bogolyubov. Metallothermic (MT) method: Al or Si are used to reduce the oxides in Zr crudes by the aluminothermic (AT) and silicothermic (ST) process, respectively. Fluxing of the Al and Si oxides is achieved by introduction of lime and fluorspar. Part of the Zr is not reduced and goes into the slag. Some of the reducer also ends up in the alloy. The process is thermally not self-sustaining; hence, it is performed in an electric furnace. The AT process yields more Zr-rich alloys and is more widely used in the USSR. The technology of the AT making of Zr-Si was tested at the Aktyubinsk ferrous-alloys plant. A rough cost estimate yields a figure of 1,200 rubles/ton Zr-Si (40% Zr), with hopes for a reduction. The MT method is also used to make Fe-Al-Zr and Ni-Zr alloys for low-Si steels and alloys at the New Lipetsk Metallurgical Plant. Carbothermic (CT) Method: The endothermic reduction of the Zr and Si oxides absorbs considerable electric energy. Smelting is done in an electric iron-smelting furnace by a con-

tinuous slagless process with closed charge hole, at relatively low v and elevated I, in a manner similar to that used in the smelting of rich varieties of Fe-Si. The Zr reduction from the CC is almost total. The process is complicated by carbide formation. Introduction of Fe chips and quartzite helps to reduce the C content in the alloy and the maintenance of a low m.p. The C dosage in the charge is the key element in successful smelting. Good gas permeability of the charge is ensured by the pelletizing of the Zr-CC with some waterglass (Method developed by TsNIICherMet). The CT process yields: Fe-Si-Zr (15-17% Zr, 35-40% Si, up to 0.12% C, remainder Fe); Fe-Si-Zr with Mn (15-17% Zr, 15-17% Mn, 35-40% Si, up to 0.12% C, remainder Fe); Si-Zr (37-40% Zr, 40-45% Si, less than 0.5% C, remainder Fe). The process was tested in a large 60-kva lab furnace. Full-table summary of the compositions and cost items incurred in the MT and CT processes. With decreasing cost of the Zr CC, the cost of the reducer becomes the governing cost element. The low cost of C offers great promise in reducing the cost of the CT process and renders it economically outstanding. A remaining process problem is the as yet unperfected technology of the Zr-alloying of steel. At present Si-Zr, e.g., clings to the ladle during pouring from open-hearth furnaces. Industrial-scale testing of the CT method is proposed for the Zaporozh'ye ferrous-alloy plant. There are 3 tables.

ASSOCIATION: Institut novoy metallurgicheskoy tekhnologii TsNIICherMet (Institute of new metallurgical technology, Central Scientific Research Institute of Ferrous Metallurgy).

S/133/63/000/002/001/014
A054/A126

AUTHORS: Bogolyubov, V.A., Candidate of Technical Sciences, Akhmedov, B.A., Kumysh, I.C., Laptev, V.K., Musa-Zade, M.M. - Engineers

TITLE: Smelting tungsten steel in open-hearth furnaces by using alumino-thermic scheelite briquettes

PERIODICAL: Stal', no. 2, 1963, 126 - 129

TEXT: According to a recommendation by TsNIIChM the 35 ХГ2 СВ (35KhG2SV) steel used for drilling pipes should have a 65 kg/mm^2 flow limit and contain: 0.32 - 0.38% C, 1.4 - 1.8% Mn, 0.4 - 0.7% Si, 0.6 - 0.9% Cr, 0.25 - 0.40 W and maximum 0.04% P and S. To establish the most suitable technology for the tungsten-alloyed low-carbon steel, three methods were tested, the steel being alloyed 1) with conventional ferrotungsten (73% W), 2) with a chrome-tungsten master alloy (23 - 29% W), according to the Kirovskiy zavod (Kirov Plant) method and 3) in accordance with the TsNIIChM recommendation, by omitting the use of ferro-alloys in alloying, and by alloying the metal directly with tungsten-containing minerals. The first method ensured a tungsten utilization of 38.3% (re-

Card 1/3

lated to the liquid metal); the second 36.3 - 59.2%; the third method was found to be the most suitable, therefore a complete technology for the direct alloying method was established. Partly scheelite ($CaO \cdot WO_3$) containing aluminothermic briquettes and partly wolframite were used in the tests. The 5 experimental compositions of scheelite briquettes [produced at the Novolipetskiy metallurgicheskiy zavod (Novolipetsk Metallurgical Plant)] contained between 61.08 and 69.82% WO_3, and were found more adequate for this process than wolframite. The briquettes were partly added to the melt, partly to the ladle. The heat capacity of the scheelite briquettes varied between 507 and 590 cal/kg. The smelting process is simple and until the moment of tapping closely follows the pattern of low-alloy steel smelting; the time required is shorter; if the smelting process is disturbed for any reason, no tungsten is wasted; the briquettes are simply not fed to the ladle and a conventional "20" grade steel will be produced. The steel alloyed with scheelite briquettes can be used for tubes without any trouble, only the tubes have to undergo a special heat treatment in compartment or roller-type furnaces, to ensure the ГОСТ(GOST) 631-57, 635-57, 633-50 requirements. The heat treatment involves normalization at 850 - 950°C for 3 - 8 1/2 minutes, annealing at 630 - 670°C (2 1/2 - 3 1/2 minutes' heating).

Card 2/3

Smelting tungsten steel in open-hearth ....

S/133/63/000/002/001/014
A054/A126

The tube steels made with scheelite briquettes and heat treated in this way have a slow limit of 67 - 70 kg/mm^2, a strength limit of 85 - 95 kg/mm^2 and a relative elongation of 10.8 - 13.0%. There is 1 table.

Card 3/3

S/058/63/000/003/044/104
A062/A101

AUTHORS: Bogolyubov, V. A., Shumelyak, G. P., Grechko, L. V., Vilenskiy, Yu.B.

TITLE: Investigation of non-diffusing reducers for color multilayer films

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 86, abstract 3D583 ("Uspekhi nauchn. fotogr.", 1962, no. 8, 61 - 66)

TEXT: Non-diffusing reducers are employed in color films for removing two effects of the interaction between emulsion layers: 1) the non-selective formation of dyes due to the diffusion of intermediate products of oxidation of the developing substance from the layers, that contain dye forming elements with a low reaction capacity, into the neighboring layers, and 2) the formation of a higher fog on the contact boundary of emulsion layers with the filter layer of colloid Ag (contact fog). There are described the results of the investigation of non-diffusing reducers - derivatives of hydroquinone. It is shown that with an increase of the number of carbon atoms in the alkyl substitution agents the diffusion stability and the antifog action increase from 2,5-dibutylhydroquinone to 2,5-dioctylhydroquinone, and then somewhat decrease because of the bad solu-

Card 1/2

bility of the dialkylhydroquinones. The same law was observed in a number of 2,5-bis-(dialkylaminomethyl)-hydroquinones; however the application of some dialkylhydroquinones and 2,5-bis-(dialkylaminomethyl)-hydroquinones was limited by the formation of dyed compounds in their photographic processing. There was studied the formation of dyed compounds from 2,5-dialkylhydroquinones and 2,5-bis-(dialkylaminomethyl)-hydroquinones and the purple component 1-(4-phenoxy-3-sulphophenyl)-3-octadecylpyrazolone-5. It is established that the formation reaction of the dyed compound takes place at the Ag bleaching stage of the image by potassium ferricyanide. When treating a film, that contains a non-diffusing reducing agent, by potassium ferricyanide, oxidation of the film to the corresponding quinone takes place. There are described the chemical structure and spectral properties of some dyes which are formed at the interaction of that quinone with the dye forming components.

D. Balabukha

[Abstracter's note: Complete translation]

KRASNYKH, I.F.; BOGOLYUBOV, V.A.

All-Union Conference of Workers in the Iron-Alloy Industry. Stal' 23 no.1:58-59 Ja '63. (MIRA 16:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. (Metallurgy—Congresses)

BOGOLYUBOV, V.A., kand.tekhn.nauk; AKHMEDOV, B.A., inzh.; KUMYSH, I.S., inzh.; LAPTEV, V.K., inzh.; MUSA-ZADE, M.M., inzh.

Making tungsten steel in open-hearth furnaces with use of aluminothermic scheelite briquets. Stal' 23 no.2:126-129 F '63. (MIRA 16:2)

(Tungsten steel—Metallurgy)

ACCESSION NR: AP4009586 S/0148/64/000/001/0056/0061

AUTHOR: Gulyayev, A. P.; Ul'yanin, Ye. A.; Bogolyubov, V. A.; Merkulova, R. F.

TITLE: The behavior of rare-earth metals in liquid steel

SOURCE: IVUZ. Chernaya metallurgiya, no. 1, 1964, 56-61

TOPIC TAGS: rare-earth metals, ferrocerium, cerium, lanthanum, neodymium, praseodymium, desulfurizer, oxide-sulfide mixtures, electron microanalyzer, ferrotitanium, liquid steel

ABSTRACT: A study was made of the behavior of individual samples of rare-earth metals in steel on the basis of the speed of their burning-out process and their effect on the oxygen and sulfur content in the steel. The introduction of cerium, lanthanum, neodymium and praseodymium is followed by a sharp reduction in the oxygen content of the steel. The oxidation of rare-earth metals increases with their increasing content in steel. These metals are also active desulfurizers. A study was made also of the nonmetallic inclusions of rare-earth metals in forged steel.

Card 1/2

ACCESSION NR: AP4009586

The chemical composition of the steel was established by the use of an electron microanalyzer on any area larger than one square micron. Methodical difficulties prevented the establishment of the exact chemical composition of the inclusions (impurities); all that could be found was that they contain about 50% rare-earth metal. The optical properties of cerium, lanthanum, neodymium and praseodymium inclusions are fairly similar, the last two of them frequently occurring in the form of separate isolated globules. Orig. art. has: 3 figures and 4 tables.

ASSOCIATION: None

SUBMITTED: 10Aug63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: EL NO REF SOV: 004 OTHER: 000

Card 2/2

GULYAYEV, A.P.; UL'YANIN, Ye.A.; BOGOLYUBOV, V.A.; MERKULOVA, R.F.

Behavior of rare-earth metals in liquid steel. Izv. vys. ucheb. zav.; chern. met. 7 no.1:56-61 '64. (MIRA 17:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

BOGOLYUBOV, V.F.

AUTHOR BOGOLYBOV, V.F., PA - 2593

TITLE New modification of the capacity method for measurements of the potential difference and its application to the study of contact potentials of semi-conductor.
(Novaya modifikatsiya kondensatornogo metoda izmereniya kontaktnoy raznosti potentsialov i primeneniye yeye k issledovaniyu kontaktnykh potentsialov poluprovodnikov - Russian)

PERIODICAL Radiotekhnika i Elektronika, 1957, Vol 2, Nr 3, pp 323-327 (U.S.S.R.)
Received 5/1957 Reviewed 6/1957

ABSTRACT Lecture delivered at the All Union Conference for Semiconductors in November 1955 at Leningrad. Simplified constructions are applied for the condensator method for measuring ofcontact potentials of semiconductors for the purpose of increasing sensitivity and improving work stability. Besides the modification of the contact potential of the metallic selenium in dependence on exterior atmospheric pressure and on the illumination of thesurface of the sample is investigated more closely than before. The KELVIN method was employed, but the electromagnetic vibrator was replaced by mechanically connected oscillation systems and by the utilization of sound resonance. Itis shown that this changed method is sufficiently precise and stable.The contact potential of the selenium in relation toplatinum was measured in dependence on the vacuum degree. With an increase of the vacuum, the selenium output decreases. Measurements in dependence on illumination were carried out in the interval of from 0 up to 2,5 lx. At a pressure

Card 1/2

New modification of the capacity method for measurements of the potential difference and its application to the study of contact potentials of semi-conductors. PA - 2593

of $P<5.10^{-4}$ torr. thecontact potential of the selenium remained nearly the same and was independent of illumination.At pressures of $P>2.10^{-5}$ torrthe potential changed very considerably in dependence on illumination. A great difference according to time was observed with respect to the behavior of the contact potential in dependence on the degree of the preceding thianing.
(2 tables, 4 ill.,and 2 citations from Slav publications)

ASSOCIATION Saratov State University N.G.Chernyshevskiy (Saratovskiy gosudarstvennyy universitet im. N.G.Chernyshevskogo.)
PRESENTED BY
SUBMITTED
AVAILABLE Library of Congress
Card2/2

S/137/62/000/004/008/201
A006/A101

AUTHORS: Bogolyubov, V. F., Lysenko, A. S.

TITLE: Changes in the contact potential of nickel in the degassing process (Preliminary information)

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 18, abstract 4A92 ("Nauchn. yezhegodnik Saratovsk. un-t, Fiz. fak. i N.-i. in-t mekhan. i fiz. 1955", Saratov, 1960, 14 - 16)

TEXT: For the purpose of controlling the degree of metal degassing, the authors investigated contact potentials of Ni. The difference of contact potentials between Ni and Pt was measured with the aid of the capacitor method. The results obtained show that with higher temperature the contact potential of Ni increases, attaining a maximum at 300°C; it decreases then and becomes more negative than the initial value by over 1 v. The initial increase of the potential is connected with desorption of O, and its further changes with desorption of H. To reveal the true causes, experiments in H_2 atmosphere are necessary.

Yu. Nikitin

[Abstracter's note: Complete translation]

Card 1/1

38183

26.2421

S/058/62/000/004/115/160
A061/A101

AUTHOR: Bogolyubov, V. F.

TITLE: Change of the contact potential in illuminated selenium

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 42, abstract 4E363 (Uch. zap. Saratovsk. un-t, 1960, v. 69, 99-103)

TEXT: The dependence of the contact potential of crystalline Se on the frequency of incident light was studied in vacuum at room temperature. A condenser method was applied, in which the whole system was vibrated. The measurements were accurate within an error of 0.5 mv. The contact potential was maximum at a wavelength of the incident light near 4,250 Å. The curves plotted for the spectral distribution of the internal photoelectric effect agree with those described in the literature.

S. Dvorin

[Abstracter's note: Complete translation]

Card 1/1

PET'KO, Nikolay Ivanovich; BERMAN, Igor' Borisovich; BOGOLYUBOV, V.F., red.; A.JAZOV, V.Z., red. izd-va; SALAZKOV, N.P., tekhn. red.

[Networks for supplying a.c. operative power to relay protection and automatic control systems in municipal electric-power plants and substations] Skhemy pitaniia peremennym operativnym tokom tsepei relainoi zashchity i avtomatiki na gorodskikh elektricheskikh stantsiiakh i podstantsiiakh; ekspluatatsiia i naladka. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1962. 76 p. (MIRA 16:4)
(Electric power supply to apparatus)
(Electric substations) (Electric power plants)

BOGOLYUBOV, Vasiliy Ivanovich[Boholiubov, V.I.]; KALECHITS, Vitaliy Vasil'yevich [Kaliechyts', V.V.]. Inzh.: BAUMSHTEYN, V.Ye.[Baumshtein, V.IE.], red

[Mint that makes gold; chemistry in our life] Monetnyi dvir, shcho kuiue zoloto; khimiia v nashomu zhytti. Kyiv, Politvydav Ukrainy, 1964. 109 p. (MIRA 17:9)

1. Glavnyy spetsialist otdela planirovaniya khimicheskoy promyshlennosti Gosudarstvennogo planovogo komiteta Ukr.SSR (for Kalechits).

BOGOLYUBOV, V.M.

Role of potassium in the therapy of extrasystole and paroxysmal tachycardia. Ter. arkh. 35 no.7:41-48 Jl '63 (MIRA 17:1)

1. Iz Instituta terapii (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L.Myasnikov) AMN SSSR.

BOGOLYUBOV, V.M. (Moskva)

Discussions on the reports of the scientific part of the 21st Session of the General Assembly of the Academy of Medical Sciences of the U. S. S. R. dedicated to the problem of preventing cardiovascular diseases. Vest.AMN SSSR 20 no.7:85-92 '65.

(MIRA 18:8)

CHAZOV, Ye.I.; BOGOLYUBOV, V.M.; DENISOV, Ye.I.; RUDA, M.Ya.

Experimental basis for the diagnosis of thrombosis by means of labeled I^{131} fibrinolysin. Biul. eksp. biol. i med. 60 no.7:28-31 Jl '65. (MIRA 18:8)

1. Institut terapii (direktor - deystvitel'nyy chlen AMN SSSR prof. A.L. Myasnikov) AMN SSSR i Institut meditsinskoy radiologii (direktor - deystvitel'nyy chlen AMN SSSR prof. G.A. Zadgenidze) AMN SSSR, Moskva.

L 42981-65 EWT(d)/EWT(m)/EPF(n)-2/EWG(m)/EWA(d)/EWP(v)/EPR/EWP(t)/EWP(k)/EWP(b)/EWP(z)/EWP(b)/EWP(l)/EWA(c) Pf-4/Ps-4/Pu-4 IJP(c) JD/HW/JG

ACCESSION NR: AP5008388 S/0148/65/000/003/0089/0093

AUTHOR: Krupin, A. V.; Pavlov, I. M.; Chernyshev, V. N.; Bogolyubov, V. S.; Linetskiy, B. L.

TITLE: The vacuum rolling mill 210 14

SOURCE: IVUZ. Chernaya metallurgiya, no. 3, 1965, 89-93

TOPIC TAGS: vacuum rolling mill, rolling mill equipment, rolling mill 210 15

ABSTRACT: The vacuum rolling plant 210 has been designed and built at the Moscow Institute for Steel and Alloys. The plant consists of a rolling mill and heat-treating furnaces enclosed in a common vacuum chamber, which makes it possible to heat, roll, and heat-treat metals and alloys either in a vacuum or in a protective atmosphere in one continuous operation. The one-stand, two-high reversible mill has rolls 210 mm in diameter and 340 mm long. The maximum permissible roll pressure is 100 tons, and the maximum roll opening is 50 mm. The mill is driven by a 22-kw, d-c motor at speeds of [illegible] rpm. The rolls can be preheated if necessary. The maximum temperature in

Card 1/2

L 42964-65

ACCESSION NR: AP5008388

one furnace is 1650C and in another, 1300C. The vacuum chamber is 1020 mm in diameter and is made of a steel plate 10 mm thick. The vacuum system can evacuate the chamber to 1·10⁻³—1·1[illegible] mm Hg. The mill has been used to roll refractory metals (V, Nb, Ta, Zr, Mo, and W) and metal-to-metal laminates (e.g., titanium alloy-bronze, titanium alloy-stainless steel, titanium alloy-niobium-stainless steel, titanium alloy-tantalum-stainless steel). Orig. art. has: [illegible]

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steel and Alloys)

SUBMITTED: 25Sep64 ENCL: 00 SUB CODE:

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3236

Card 2/2

L 45294-66 EWP(e)/EWP(v)/EWT(d)/EWT(m)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) IJP(c)
ACC NR: AR6017489 JD/HW/JG/AT/WH SOURCE CODE: UR/0137/66/000/001/D024/D024

AUTHORS: Pavlov, I. M.; Krupin, A. V.; Chernyshev, V. N.; Bogolyubov, V. S.; Linetskiy, B. L.

67
B

TITLE: Devices for working refractory metals in vacuum and in inert media

SOURCE: Ref. sh. Metallurgiya, Abs. 1D170

REF SOURCE: Tr. Mosk. in-ta stali i splavov i Mosk. energ. in-ta, vyp. 61, ch. 2, 1965, 89-94

TOPIC TAGS: physical metallurgy, metal rolling, rolling mill, refractory metal

ABSTRACT: Problems associated with rolling some metals in a vacuum are discussed. Special types of mills used in vacuum rolling and the technique of rolling some refractory metals are described. A. Leont'ev [Translation of abstract]

SUB CODE: 11

Card 1/1

UDC: 669.621.771.27

L 07979-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG/WB 1

ACC NR: AT6022710 SOURCE CODE: UR/2848/66/000/041/0196/0204

AUTHORS: Krestovnikov, A. N.; Krupin, A. V.; Linetskiy, B. L.; Chernyshev, V. N.; Bogolyubov, V. S.

ORG: Moscow Institute of Steel and Alloys, Department of Technology and Automation of the Rolling Industry (Moskovskiy institut stali i splavov, Kafedra tekhnologii i avtomatizatsii prokatnogo proizvodstva)

TITLE: Thermodynamic analysis of the conditions of nonoxidizing rolling of tungsten in a vacuum at high temperatures

SOURCE: Moscow. Institut stali i splavov. Sbornik, no. 41, 1966. Fizicheskaya khimiya metallurgicheskikh protsessov i sistem (Physical chemistry of metallurgical processes and systems), 196-204

TOPIC TAGS: tungsten, tungsten compound, tungsten containing alloy, tungsten alloy, THERMODYNAMIC ANALYSIS, METAL ROLLING, METAL OXIDATION

ABSTRACT: Thermochemical calculations of tungsten behavior at various temperatures and residual pressures and conditions under which oxidation cannot occur are presented. The thermodynamic calculations for the oxidation reactions which form WO_3, W_2O_5, and WO_2 are given for temperatures 1200--1600C, and the thermodynamic characteristics (as well as enthalpy and entropy) are tabulated for the tungsten oxides over the temperature range 1473--1873K. The characteristic temperatures of the oxides are given and

Card 1/2

ACC NR: AT6022710

the Debye functions for tungsten and oxygen in W_2O_5 are tabulated. Based on this data, curves of the isobaric potentials for oxide formation and of the equilibrium pressures of oxygen as a function of temperature are constructed as shown in Figs. 1 and 2.

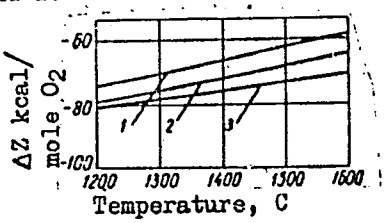


Fig. 1. Isobaric potentials of oxide formation: 1 - WO_3; 2 - WO_2; 3 - W_2O_5.

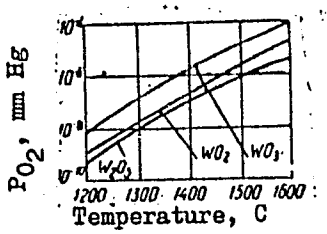


Fig. 2. Dissociation constants of tungsten oxides.

It is concluded that rolling of tungsten in a vacuum to prevent oxidation is feasible. Orig. art. has: 9 tables, 12 formulas, and 2 figures.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 018/ OTH REF: 003

Card 2/2

L 07979-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/JG/WB

ACC NR: AT6022710 SOURCE CODE: UR/2848/66/000/041/0196/0204

AUTHORS: Krestovnikov, A. N.; Krupin, A. V.; Linetskiy, B. L.; Chernyshev, V. N.; Bogolyubov, V. S.

ORG: Moscow Institute of Steel and Alloys, Department of Technology and Automation of the Rolling Industry (Moskovskiy institut stali i splavov, Kafedra tekhnologii i avtomatizatsii prokatnogo proizvodstva)

TITLE: Thermodynamic analysis of the conditions of nonoxidizing rolling of tungsten in a vacuum at high temperatures

SOURCE: Moscow. Institut stali i splavov. Sbornik, no. 41, 1966. Fizicheskaya khimiya metallurgicheskikh protsessov i sistem (Physical chemistry of metallurgical processes and systems), 196-204

TOPIC TAGS: tungsten, tungsten compound, tungsten containing alloy, tungsten alloy, THERMODYNAMIC ANALYSIS, METAL ROLLING, METAL OXIDATION

ABSTRACT: Thermochemical calculations of tungsten behavior at various temperatures and residual pressures and conditions under which oxidation cannot occur are presented. The thermodynamic calculations for the oxidation reactions which form WO_3, W_2O_5, and WO_2 are given for temperatures 1200--1600C, and the thermodynamic characteristics (as well as enthalpy and entropy) are tabulated for the tungsten oxides over the temperature range 1473--1873K. The characteristic temperatures of the oxides are given and

Card 1/2

the Debye functions for tungsten and oxygen in W_2O_5 are tabulated. Based on this data, curves of the isobaric potentials for oxide formation and of the equilibrium pressures of oxygen as a function of temperature are constructed as shown in Figs. 1 and 2.

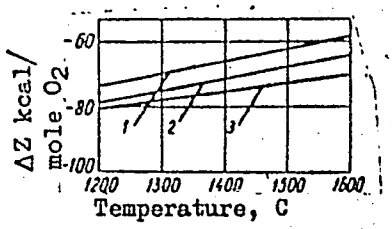


Fig. 1. Isobaric potentials of oxide formation: 1 - WO_3; 2 - WO_2; 3 - W_2O_5.

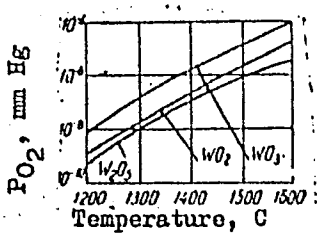


Fig. 2. Dissociation constants of tungsten oxides.

It is concluded that rolling of tungsten in a vacuum to prevent oxidation is feasible. Orig. art. has: 9 tables, 12 formulas, and 2 figures.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 018/ OTH REF: 003

BOGOLYUBOV, V. V.

PA 39/49T92

USSR/Metals
Aluminum
Titanium

Apr 49

"Lower Titanium Oxides in Slags Produced by Aluminothermy," Acad D. S. Belyankin, V. V. Bogolyubov, V. V. Lapin, 4 pp

"Dok Ak SSSR" Vol LXV, No 5

Assumes the following three processes must occur during aluminothermy (1) $3TiO_2 + 4Al = 3Ti + 2Al_2O_3$, (2) $6TiO_2 + 2Al = 3Ti_2O_3 + Al_2O_3$, and (3) $3TiO_2 + 2Al = 3TiO + Al_2O_3$. States that expenditure of 0.188 kg of aluminum per kg titanium is required for reduction of titanium dioxide to sesquioxide according to reaction (2), which is confirmed in practice. Attempts to determine mineralogical forms in which these oxides are contained, and also to decide if some other nonoxygenous compound of titanium emerges, particularly titanium nitride (TiN), which also is stable at high temperatures Submitted 17 Feb 49.

39/49T92

BOGOLYUBOV, V.V.

Real scientific cultivation, correct organization of labor
Vin. SSSR 12 no. 3, 1952

BOGOLYUBOV. V. YE.

42260 Bogolyubov, V. Ye. Kvazireladsatsionyye Kolebaniya v Ferrore zonansnykh Tsepyakh Trudy Mosk. energet. in-ta im Molotova, VYP 3, 1948 s 127-45

SO: Letopis' Zhurnal' nykh Statey, Vol; 4[illegible], 1948

BOGOLYUBOV, V. YE.

19898 BOGOLYUBOV, V. YE.

Kvazi-relaksatsionnyye kolebaniya v ferrorezonansnykh tsepyakh s podmagnichivaniyem. Elektrichestvo, 1949, №6, s. 42-46

So: Letopis Zhurnal Statey - Vol 27 - Moskva, 1949

30824. BOGOLYUBOV, V. Ye.

Mera zatukhaniya podmagnichennogo drosselya. Vestnik elektroprom-sti, 1949, No. 9, s. 18-20. -- Bibliogr: 5 nazv.

BOGOLYUBOV, V. YE. DOCENT

PA 171T17

USSR/Electricity - Transients Mar 50
Saturable Reactors

"Transient Processes in Saturable Reactors Caused by Fluctuations in Voltage," Docent V. Ye. Bogolyubov, Cand Tech Sci, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 3 pp 56-60

Suggests method for approximate calculation of transient processes in saturable coils caused by variation in amplitude of alternating voltage applied to coil. Submitted 7 Sep 49.

[redacted]R 171T17

BOGOLYUBOV, V. YE., Docent PA 167T13

USSR/Electricity - Instruments, Magneto- May 50
electric
Waveforms

"Experimental Determination of Curve of Average Current Variation," Docent V. Ye. Bogolyubov, Cand Tech Sci, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 5, pp 57-60

It is often desirable to isolate slowly changing ac envelope of a waveform. Suggests instrument for recording variation of this envelope with respect to time, and method of obtaining same relationship using any recording magnetoelectric instrument.
Submitted 19 Dec 49

167T13

BOGOLYUBOV, V. YE., Docent

PA 167T45

USSR/Electricity - Transients Sep 50
Graphic Methods

"Graphic Method of Calculating Transient Processes in a Steel Circuit, Taking Hysteresis Into Account," Docent V. Ye. Bogolyubov, Cand Tech Sci, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 9, pp 64-66

States method for graphic solution of nonlinear differential equations of first order from right-hand term. Gives examples of applying method to calculate subject processes.

167T45

BOGOLYUBOV, V. Ye., Docent PA 196T32

USSR/Electricity - Reactors, Saturable Aug 51

"Calculation of Quasi-Relaxation Oscillations in Ferroresonance Circuits With Saturable Reactors," Docent V. Ye. Bogolyubov, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 8, pp 64-69

Proposes simple approx method for calcn of quasi-relaxation oscillations in ferroresonance circuits with saturable reactors. Method is suitable for approx engineering calcns. Submitted 5 Feb 51.

196T32

Bogolyubov, V. Ye.

AID P - 945

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 14/25

Authors : Bogolyubov, V. Ye., Kand. of Tech. Sci., and Shamayev, Yu. M., Kand. of Tech. Sci., Moscow

Title : Electrolytic cell with the least distorting wall - reflection effect

Periodical : Elektrichestvo, 10, 68-72, O 1954

Abstract : The use of the electrolytic cell prevails in the study of models of various kinds of fields: electrostatic, magnetic, electromagnetic, temperature, hydrodynamic and others. Also, certain problems of the theory of electric circuits can be solved with the help of the cell. However, reflections of the field from the cell walls have a distorting effect, which can be eliminated by screening, or greatly reduced by the proper selection of conductivity of the cell walls. The method of selection is discussed. Seven diagrams, 9 references (1922-1952).

Institution : Moscow Power Institute im. Molotov

Submitted : My 17, 1954

Bogolyubov, V. E.

USSR/Chemistry -- Physical chemistry

Card 1/1 Pub. 22 - 26/48

Authors : Bogolyubov, V. E., and Shamayev, Yu. M.

Title : Electrolytic bath with semi-conductive baths

Periodical : Dok. AN SSSR 98/3, 423-426, Sep 21, 1954

Abstract : A method for the selection of the conductivity ratio of the electrolyte and the walls of the bath for the purpose of obtaining a minimum hindrance potentials is presented. The necessity of considering the reflected images from two boundaries (electrolyte - wall of bath and wall of bath - surrounding medium), in the case of a wall with infinite conductivity, is explained. A complete solution for such a problem, derived by the method of image reflection with consideration of the boundary conditions, is described. Five USSR references (1943-1952). Graph; drawing; diagrams.

Institution : The V. M. Molotov Energetics Institute, Moscow

Presented by: Academician S. A. Lebedev, March 1, 1954

BOGOLYUBOV, V. Ye.

"Transitional Processes in Ferroresonant Circuits With Magnetization." Dr Tech Sci, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov, Min Higher Education USSR, Moscow, 1955. (KL, No 17 Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

Name: BOGOLYUBOV, Valentin Yevgen'yevich

Dissertation: Transients in magnetized ferroresonant circuits

Degree: Doc Tech Sci

Affiliation: [not indicated]

Defense Date, Place: 30 Jun 55, Council of Moscow Order of Lenin Power Engineering Inst

Certification Date: 29 Jun 57

Source: BMVO 18/57

BOGOLYUBOV, V.Ye., kandidat tekhnicheskikh nauk; SHAMAYEV, Yu.M., kandidat tekhnicheskikh nauk.

Using semiconducting coatings to reduce distortions due to the walls of electrolytic tanks. Trudy MEI no.18:240-259 '56. (MLRA 10:1)

1. Kafedra teoreticheskikh osnov elektrotekhniki.
(Electric fields) (Semiconductors)

Bogolyubov, V. Ye.

112-1-853

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 1, p. 137 (USSR)

AUTHORS: Bogolyubov, V. Ye., Dyatlov, V. L.

TITLE: Reduction of the Time Constant of Drive Control Circuits Containing a Bridge Rectifier (Snizheniye postoyannoy vremeni tsepey upravleniya elektroprivoda, soderzhashchikh vypryamitel'nyy most)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Nr 22, pp. 87-98

ABSTRACT: A bridge rectifier is an indispensable component part of magnetic amplifiers of electric drives. While steady states in bridge rectifiers have been investigated in sufficient detail, their transient conditions require further study, particularly in connection with the magnitude of the time constant of the circuit. It is important to evaluate the time constant of the magnetic amplifier circuit, accounting for the influence of the bridge rectifier, when designing such schemes. Experience demonstrates that in certain conditions the introduction of the bridge rectifier increases, and in other conditions reduces, the time constant of the

Card 1/3

Reduction of the Time Constant of Drive Control Circuits Containing a Bridge Rectifier (Cont.)

system, by several times. In order to investigate the problem, a circuit is examined, which contains resistance R and inductance L of the generator (source of a-c energy) and resistance R_d and inductance L_d of the d-c load, fed through the bridge rectifier. It is assumed that R_d and L_d are given, and that the values of R and L can be changed. The transient process is investigated for the commutation operating conditions of the system, i.e. for a position when all 4 valves of the bridge are transmitting current. In consequence of solving the system of differential equations, formulas of current changes in relation to time are obtained; in these the time constant of the scheme appears as a parameter. A roughly approximate formula is given for the system time constant

$$\tau \cong \frac{T}{2} + \tau_d \left(1 - \frac{L}{L_d}\right),$$

where τ_d is the time constant of the load circuit. Theoretical calculation and experience demonstrate that the introduction of an additional inductance into the circuit of

Reduction of the Time Constant of Drive Control Circuits Containing a Bridge Rectifier (Cont.)

the a-c current source permits the reduction of the value of τ_1 by several tens of times. However, at the same time one has to increase the applied a-c voltage by the value of the voltage drop in the additional inductance.

Card 3/3

L.B.G.

BOGOLYUBOV, V. Ye.
and
SHAMAYEV, Yu. M.

" The Use of Semiconductor Coverings on the Walls of an Electrolytic Bath for Decreasing Distortion," pp 240-258, ill, 10 ref

Abst: A method for substantial reduction of noise potential, as compared with the actual potential, consisting of an application of semiconducting coating to the bath walls, is suggested. The advantages of such coatings are pointed out.

SOURCE: Trudy Moskovskogo Energeticheskogo In-ta im. V. M. Molotova MVO SSSR (Works of the Moscow Energetics Institute imeni, V. M. Molotov of the Ministry of Higher Education USSR), No 18, Electric Vacuum Technology and Instrument Building, Moscow-Leningrad, Gosenergoizdat, 1956

Sum 1854

BOGOLYUBOV, V. Ye.

AUTHOR: Sergeyev, A. S., Docent 105-58-4-26/37

TITLE: Dissertations (Dissertatsii)

PERIODICAL: Elektrichestvo, 1958, Nr 4, pp. 85-86 (USSR)

ABSTRACT: For the degree of Doctor of Technical Sciences 1955-1956.

V. Ye. Bogolyubov, on June 30, 1955, at the Scientific Council of the Moscow Institute for Power Engineering (uchenyy sovet Moskovskogo energeticheskogo instituta): "Transient Processes in Ferro-Resonance Circuits With Preliminary Magnetization". Official opponents were: The Corresponding Member of the AS USSR L. R. Neyman, Doctor of Technical Sciences Professor V. G. Komar and Doctor of Technical Sciences Professor N. V. Gorokhov.

Ye. Ya. Gakkel', on November 9, 1955, at the Scientific Council of the Leningrad Institute for Railroad Traffic Engineers (uchenyy sovet Leningradskogo instituta inzhenerov zheleznodorozhnogo transporta): "Energetic Circuit of a Diesel Locomotive With Electric Drive". Official opponents were: Doctor of Technical Sciences Pro-

Card 1/5

fessor A. V. Fateyev, Professor K. A. Shishkin, Corresponding Member of the AS USSR A. Ye. Alekseyev.

T. P. Gubenko, on November 25, 1955, at the Scientific Council of the Moscow Institute for Power Engineering (uchenyy sovet Moskovskogo energeticheskogo instituta): "The Induction Motor in Braking". Official opponents were: Doctor of Technical Sciences Professor M. G. Chilikin, Doctor of Technical Sciences Professor G. N. Petrov and Doctor of Technical Sciences Professor A. T. Golovan.

V. A. Golubtsova, on December 30, 1955, at the Scientific Council of the Moscow Institute for Power Engineering (uchenyy sovet Moskovskogo energeticheskogo instituta): "History and Prospects of the Development of Electroinsulation Materials for Electric Machines, Apparatus, Lines and Cables". Official opponents were: Doctor of Technical Sciences Professor N. V. Aleksandrov, Doctor of Technical Sciences Professor G. N. Petrov and Doctor of Technical Sciences Professor L. D. Bel'kind.

Yu. V. Dolgolenko, on February 6, 1956, at the Scientific Council of the Leningrad Polytechnical Institute imeni Kalinin (uchenyy sovet Leningradskogo politekhnicheskogo instituta im. Kalinina): "Slip in Relay Systems With Indirect Control". Official opponents were: Doctor of Physico-Mathematical Sciences Professor N. V. Butenin, Doctor of Technical Sciences Professor Ye. P. Popov and Doctor of Technical Sciences Professor Ya. Ye. Taypkin.

A. M. Fedoseyev, on May 25, 1956, at the Scientific Council of the Moscow Institute for Power Engineering (uchenyy sovet Moskovskogo energeticheskogo instituta): "Relay Protection of Electrical Systems". Official opponents were: Doctor of Technical Sciences Professor I. A. Syromyatnikov, Doctor of Technical Sciences Professor I. M. Markovich and Doctor of Technical Sciences Professor L. Ye. Ebin.

L. A. Bessonov, on June 14, 1956, at the Scientific Council of the Institute for Automation and Remote Control of the AS USSR (uchenyy sovet Instituta avtomatiki i telemekhaniki AN SSSR): "Automodulation and Some Dynamic Phenomena in Electric Circuits With Steel". Official

opponents were: Corresponding Member of the AS USSR Professor L. P. Neyman, Doctor of Technical Sciences Professor Yu. G. Tolstov and Doctor of Technical Sciences M. A. Rozenblat.

B. I. Rozenberg, on June 30, 1956, at the Scientific Council of the Leningrad Polytechnical Institute imeni Kalinin (uchenyy sovet Leningradskogo politekhnicheskogo instituta im. Kalinina): "Energy Losses in High-Voltage Networks and Methods for Their Reduction". Official opponents were: Doctor of Technical Sciences Professor V. I. Ivanov, Doctor of Technical Sciences Professor N. N. Shchedrin and Doctor of Technical Sciences Professor V. V. Bolotov.

G. M. Tikhodeyev, on June 30, 1956, at the Scientific Council of the Leningrad Polytechnical Institute imeni Kalinin (uchenyy sovet Leningradskogo politekhnicheskogo instituta im. Kalinina): "Energetic Properties of an High--Power Electric Arc" (Welding Type)". Official opponents were: Corresponding Member of the AS USSR K. K. Khrenov, Doctor of Technical Sciences Professor O. B. Bron, Doctor of Technical Sciences Professor A. K. Zalesskiy and Doctor of Technical Sciences Professor A. B. Donskoy.

Dissertations

105-58-4-26/37

R. R. Kharchenko, on June 30, 1956, at the Scientific Council of the Moscow Institute for Power Engineering (uchenyy sovet Moskovskogo energeticheskogo instituta): "Special Problems With Dynamic Magneto-Electric Apparatus" Official opponents were: Doctor of Technical Sciences Professor K. M. Polivanov, Doctor of Technical Sciences Professor V. O. Arutyunov and Doctor of Technical Sciences Professor L. F. Kulikovskiy.

AVAILABLE: Library of Congress

1. Power engineering-Reports

Card 5/5

Bogolyubov, Yu. Ye.

8(2); 28(1) PHASE I BOOK EXPLOITATION SOV/1433

Soveshchaniye po avtomatizirovannomu elektroprivodu peremennogo toka, Moscow, 1955

Trudy... (Transactions of the Conference on Automated A-C Electric Drives) Moscow, Izd-vo AN SSSR, 1958. 398 p. 4,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

Resp. Eds: V.S. Kulebakin, Academician, and M.G. Chilikin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: D.N. Ioffe; Tech. Ed.: I.F. Kuz'min.

COVERAGE: The conference was organized on the initiative of the Institute of Automation and Telemechanics of the Academy of Sciences, USSR, and the Moscow Power Engineering Institute and had as its aim the planning of the most progressive ways of developing automatic control of electric drives. The first conference on the subject of automated electric drive took place more than ten years before the present one and was concerned with d-c electric drives. The results of this conference were found to be most valuable in the task of rebuilding postwar Soviet industry and in furthering industrial development. Present technical development of Soviet industry demands high speeds, simplicity of construction, reliability of operation, and economy. The squirrel-cage induction motor with frequency control appears to be the most promising type of controlled a-c drive. For wide application of this drive in the Soviet economy there is a need of developing new types of frequency converters. Some interesting studies were made in this connection at the Institute of Automation and Telemechanics of the USSR Academy of Sciences and its Leningrad branch, at the Moscow Power Engineering Institute, the Central Design Bureau of the Elektroprivod Plant, the State Design Institute of the Ministry of Construction of the RSFSR, and in other design organizations. These studies were discussed at the present conference. The transactions contain material concerning the theory and design of reactor, pulse, and frequency methods of controlling a-c electric drives.

Candidate of Technical Sciences I.V. Utkin and Engineer V.A. Kokoreva participated in the preparation of this collection of papers. The volume was reviewed by Professor Ya. V. Mitusov, Doctor of Technical Sciences. Some of the papers include a bibliography.

TABLE OF CONTENTS:

9(0) SOV/112-59-3-5429

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 162 (USSR)

AUTHOR: Andreyev, G. P., Bogolyubov, V. Ye., and Dyatlov, V. L.

TITLE: Allowing for Real Properties of Materials in the Ramay's Magnetic Amplifier (K uchetu real'nykh svoystv materialov v magnitnom usilitele Rameya)

PERIODICAL: Tr. Mosk. energ. in-ta, 1958, Nr 27, pp 118-126

ABSTRACT: A graphic method of plotting the input-output characteristics of a one-shot half-wave (high-speed) magnetic amplifier is presented. The method is based on experimental characteristics of the amplifier core and on the plot of the maximum control current against its average value determined from an amplifier model. Constructing the characteristics for controlling the rectified half-wave voltage and for controlling a resistance is described.
Nine illustrations. Bibliography: 4 items.

I.B.N.

Card 1/1

16.8000 (1031)
9.2530

30847
S/044/61/000/008/019/039
C111/C333

AUTHORS: Bogolyubov, V. Ye., Dyatlov, V. L.

TITLE: A method for calculating the transients in systems of higher order with magnet amplifiers and other essentially non-linear elements

PERIODICAL: Referativnyy zhurnal, Matematika, no. 8, 1961, 53-54, abstract 8B228.("Tr. Soveshchaniya po avtomatizir. elektroprivodu peremen. toka", 1955, M., AN SSSR, 1956, 300-311

TEXT: Considering the questions connected with the investigation of dynamically complicated, essentially non-linear technical systems the authors use the "method of phase families" proposed by them for the approximative solution of systems of differential equations

$$\dot{x}_i = f_i(x_i, m_i), \; i = 1, \ldots, n, \qquad (1)$$

where the "parameters" m_i are known functions of the time t, of the coordinates $x_k (k = 1,\ldots, i-1, i+1,\ldots, n)$ and of the integrals of

Card 1/4

A method for calculating the . . .

the $x_i (i=1,\ldots,n)$ with respect to the time. The proposed method is based on the assumption that in a sufficiently short interval the variations of the "parameters" are negligibly small compared with the variations of the corresponding coordinates and of their timely derivatives.

The method of calculation resulting from this assumption consists in the following: At first n planes $(x_1, \dot{x}_1), \ldots, (x_n, \dot{x}_n)$ are taken, and on each of them there is constructed the zero level of the corresponding function $\dot{x}_i - f_i (x_i, m_i)$ which is determined by the initial value (for $t = 0$ of the "parameter" m_i. Then new values of all m_i are calculated which correspond to the new moment, where the growths of the coordinates are calculated according to the formulas

$$\Delta x_i(0) = f_i(x_i(0), m_i(0)) \cdot \Delta t, \; i = 1, \ldots, n, \qquad (2)$$

while the growths of the integrals are put equal to

$$\frac{x_i(0) + [x_i(0) + \Delta x_i(0)]}{2} \cdot \Delta t, \quad i = 1, \ldots, n. \qquad (3)$$

Continuating analogously one obtains in every plane (they are called "phase planes" by the authors) a certain number of levels (which are called "phase trajectories").

The set of the levels in one plane is denoted as "phase family" of the corresponding plane and allows to draw an arbitrary number of oriented polygons from which the courses of all $x_i(t)$ and of their integrals can be approximatively determined, i. e. one obtains approximative (corresponding to the above assumption) parameter representations of what is usually denoted as a phase trajectory (the authors use this denotation, as already mentioned, in another sense). The mentioned oriented polygons give no possibility to judge simply and directly on the structure of the 2n-dimensional phase space of the system (all the x_i and their integrals serve as coordinates). These polygons are projections onto the planes $(x_i, \dot{x}_i)$ of the trajectories of the space $(x_1, \ldots, x_n, \dot{x}_1, \ldots, \dot{x}_n)$ which is the image of the

4

30847
S/044/61/000/008/019/039
A method for calculating the . . . C111/C333

phase space for a certain mapping. Considering concrete technical problems (transients in the saturation choke, calculation of a servo system, calculation of a control system) the authors assert that it is really possible to conclude from the form of these polygons to the behavior of the corresponding systems. The authors give no criteria for the verification of their initial assumption, however, think that, since their method is suitable for the mathematical investigation of electro-systems with constant parameters, the results can be controlled sufficiently fast from the point of view of their so-called "physical sense". The reading of the paper is aggravated by crass deviation from the terminology usual in the theory of phase spaces and by a number of misprints.

[Abstracter's note: Complete translation.]

4

Card 4/4

30653

S/105/61/000/011/001/002
E140/E563

9.3230 (1013, 1147, 1121)

AUTHORS: Bogolyubov, V.Ye., Doctor of Technical Sciences, Shamayev, Yu.M., Candidate of Technical Sciences and Loginov, M.N., Engineer

TITLE: Transient processes in reactive networks containing transformers with square-loop ferrites

PERIODICAL: Elektrichestvo, no.11, 1961, 60-64

TEXT: The transient processes in reactive networks containing transformers with square-loop ferrites are solved taking into account the change of the dynamic hysteresis curve as a function of the rate of change of magnetization. The problem is solved by introducing the surface defined by

$$(H - H_o) = g(B) \frac{dB}{dt} \qquad (1)$$

where H is the external field intensity, $2H_o$ is the width of the idealized rectangular static hysteresis loop, g(B) is the experimentally determined specific dynamic conductance and dB/dt is the rate of variation of magnetic induction in the core. On the basis of known approximations to the experimental curves, an

Card 1/2

Transient processes in reactive S/105/61/000/011/001/002
E140/E563

approximate expression is obtained solving this differential equation and giving the curve of variation of B as a function of the ratio of B to the saturation induction B_s. To simplify calculations the assumption is made that the input pulse is rectangular and that the static hysteresis loop has a constant width. It is stated that these assumptions are not essential to the method but are merely introduced for simplification. The initial equations for the solution consist of Eq.(1) an equation expressing the law of conservation of current and Kirchhoff's second law. The equations are solved in the phase plane to supply families of curves from which the output waveforms of such a system can be obtained. In the Appendix a simple way is described for rapid calculation of the curves in the phase plane. There are 5 figures, 2 tables and 7 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Engineering Institute)

SUBMITTED: December 31, 1960

Card 2/2

39027
S/105/62/000/007/001/004
E200/E135

9.7150

AUTHORS: Bogolyubov, V.E., Doctor of Technical Sciences; Shamayev, Yu.M., Candidate of Technical Sciences; and Frolov, L.B., Engineer

TITLE: Analysis of the operation of a single-pulse shift-register taking into account the nonlinearity of the ferromagnetic material

PERIODICAL: Elektrichestvo, no.7, 1962, 1-5

TEXT: Guidelines are given on the selection of component parameters for a single-pulse magnetic-core shift-register with a capacitive delay in the loop; the nonlinear behaviour of the ferrite is taken into account. Starting from the empirical equation for the magnetization impulse

$$Q(B) = \int_o^t (H - H_o)\, dt$$

expressed by Yu.M. Shamayev et al (Izv.AN SSSR, seriya fizich., v.23, no.3, 1959) as:

Card 1/5

Analysis of the operation of a ....

$$Q(B) = \frac{1}{\delta} \operatorname{Tan}^{-1} \frac{B}{B_s} - \frac{1}{\delta} \operatorname{Tan}^{-1} \frac{B_{initial}}{B_s} \quad (4)$$

where $\delta = r_m/B_s$, and using the circuit shown in Fig.2, the authors derive the following criteria for the principal circuit parameters:

$$\frac{w_1^2 + w_2^2}{R} > 3 \times 10^6 \, C w_2^2 \quad (11)$$

$$w_{2\ opt} = \sqrt{w_1^2 + \frac{R\ell}{Sr\ (B_r)}} \quad (12)$$

$$RH_o \gg \frac{Q(B_r)}{C} \quad (24)$$

$$C \geqslant \frac{H_o S B_r w_1^2}{R^2 \ell} \quad (25)$$

Card 2/5

where: S is the cross-sectional area of the core; l is the length of the core; u_C is the voltage across the capacitor; w_1 and w_2 are the number of turns in the input and output windings respectively; B_r is the residual induction. Calculations show that the resistance R has a great effect both upon the process of charging the capacitor and the remagnetization. At large values of R remagnetization does not occur at all. Consequently R should not exceed the upper limit found from inequality (11). It should not be very small, since then the voltage $u_{C_{max}}$ decreases sharply and, at very low values of R and small capacitances, remagnetization again fails to occur. In the illustrative case considered the size of the resistance R does not affect greatly the mode of operation while it remains between the limits of 100 - 300 ohms. Within these limits it is possible to select the actual value of R from other considerations (minimal power loss, noise stability, etc). The size of the capacitor has the greatest effect upon the speed of operation of the register and from this viewpoint the capacitance should be

chosen as small as possible. However, a reduction of C will lead to a lowering of the stability of the remagnetization, as can be seen from inequalities (24) and (25). To obtain the maximum stability one should select the value of the capacitance by taking these conditions into consideration, yet without exceeding the bounds of inequality (11). Relation (12) shows that w_2 should exceed w_1. As w_1 increases, at first the stability of operation of the register is improved, and then the effect of w_1 upon the stability is reduced. The influence of the number of turns w_2 is indirect; expressing itself through the voltage u_{C_m}. To obtain the highest possible value of u_{C_m} one should take neither very low nor very high values of w_2. Optimal w_2 lies close to the value determined by Eq.(12). As H_m increases the maximal voltage on the capacitor increases and, consequently, the reliability of operation of the register is improved. At the same time the operating speed of the shift-register is increased but the power requirements are raised. There are 4 figures and 2 tables.

Card 4/5

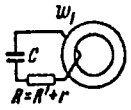
39027
S/105/62/000/007/001/004
E200/E135

Analysis of the operation of a ...

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Engineering Institute)

SUBMITTED: July 17, 1961

Fig.2



4

Card 5/5

ANDREYEV, Georgiy Pavlovich; ANDREYEV, Sergey Nikolayevich; BOGOLYUBOV, Valentin Yevgen'yevich; BURDAK, Nadezhda Mironovna; ZHUKHOVITSKIY, Boris Yakovlevich; ZEVEKE, Georgiy Vasil'yevich; KARAYEV, Ruben Iosifovich; LEVITAN Semen Arkad'yevich; MUKHIN, Aleksandr Andreyevich; NEGNEVITSKIY, Iosif Borisovich; PEREKALIN, Mikhail Aleksandrovich; POLIVANOV, Konstantin Mikhaylovich, prof., doktor tekhn.nauk; FRIDKIN, L.M., tekhn. red.

[Problems of theoretical principles of electrical engineering; theory of networks]Zadachnik po teoreticheskim osnovam elektrotekhnik; teoriia tsepei. [By]G.P.Andreev i dr. Moskva, Gosenergoizdat, 1962. 159 p. (MIRA 15:12)
(Electric engineering) (Electric networks)

BOGOLYUBOV, Valentin Yevgen'yevich, doktor tekhn. nauk, prof.; ZHARKOV, Feliks Petrovich, aspirant

Calculation of a condenser charge process through a coupling loop containing a toroid with a rectangular hysteresis loop. Izv. vys. ucheb. zav.; elektromekh. 6 no.10:1241-1244 '63. (MIRA 17:1)

1. Moskovskiy energeticheskiy institut (for Bogolyubov).
2. Kafedra teoreticheskikh osnov elektrotekhniki Moskovskogo energeticheskogo instituta (for Zharkov).

BOGOLYUBOV, V.Ye., doktor tekhn. nauk, prof. (Moskva); GORYUNOV, N.N., kand. tekhn. nauk (Moskva); VERSHIN, V.Ye., inzh. (Moskva)

Calculation of a nonsteady process in a simple circuit containing a p-n junction. Elektrichestvo no.10:1-3 O '64. (MIRA 17:12)

BOGOLYUBOV, V.Ye., doktor tekhn.nauk; ZHARKOV, F.P., inzh.; GUSEV, G.G., inzh.

Calculation of minimal losses in a circuit containing a ferromagnetic remagnetized by a charged condenser. Elektrichestvo no.9:60-61 S '65. (MIRA 18:10)

1. Moskovskiy energeticheskiy institut.